CURRICULUM VITAE

Name: Kevork Spartalian
Associate Professor of Physics

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Education: A.B. Physics, Princeton University, 1968
M.S. Physics, Carnegie-Mellon University, 1970
Ph.D. Physics, Carnegie-Mellon University, 1974

Positions:

1985-present Associate Professor, Physics Department, University of Vermont.

1986-1987	Visiting Scientist, Francis Bitter National Magnet Laboratory, Massachusetts Institute of Technology.
1979-1985	Assistant Professor, Physics Department, University of Vermont
1974-1979	Research Associate, Pennsylvania State University, L. G. Lang, Principal Investigator.
1/74-7/74	Research Associate, Carnegie-Mellon University, W. T. Oosterhuis, Principal Investigator.

Research Experience:

My research towards the A.B. degree in low-intensity interference effects was conducted under G. T. Reynolds. As a result, I have acquired experience with image-intensification devices in optical experiments. My research towards my Ph.D. thesis entitled "Mössbauer Spectroscopy in Materials of Biological Importance" was conducted under W. T. Oosterhuis. I have working knowledge of all aspects of Mössbauer spectroscopy, namely spectrometer instrumentation, preparation of samples, cryogenic hardware and methods for sample cooling and containment, and interpretation of data by developing computer techniques such as simulating and fitting experimental spectra to mathematical models that are based on physical principles. During my sabbatical year at M.I.T National Magnet Lab, I acquired experience on the use of a SQUID magnetometer for gathering susceptibility data and developed computer techniques for analyzing the results. My present research interests are in the area of Mössbauer effect spectroscopy and magnetization measurements on biomolecules and model complexes with an eye toward developing electronic models for the active site in various crystalline environments.

Teaching Experience:

I have taught several courses at the introductory, advanced undergraduate and graduate (M.S.) levels covering a broad spectrum of subject matter in classical mechanics, electricity & magnetism, thermal physics, quantum mechanics and modern physics.

Awards and Honors:

Full four-year scholarship at Princeton University, A.B. degree awarded with honors

Professional Societies:

American Physical Society
American Association of Physics Teachers
Sigma Xi, The Scientific Research Society of North America

Publications:

1. T. Reynolds, K. Spartalian, D. B. Scarl, *Interference Effects Produced by Single Photons*, Nuovo Cimento **B-61**, 355-364 (1969).

2. Spartalian and W. T. Oosterhuis, *Effects of Ligand Nuclear Magnetic Moments in Mössbauer Spectra of Iron Proteins*, Proc. Int. Conf. Appl. Mössbauer Eff., Israel, 1972, p. C7-C8.

3. K. Spartalian and W. T. Oosterhuis, *Mössbauer Effect Studies in Transferrin*", J. Chem. Phys. 59, 617-622 (1973).

4. K. Spartalian, W. T. Oosterhuis, and B. Window, *Mössbauer Effect of Iron Storage and Transport Proteins*, in Mössbauer Effect Methodology, I. J. Gruverman (Ed.) Vol. 8, 137-150 (1973).

5. K. Spartalian, N. Smarra, and W. T. Oosterhuis, *Superparamagnetism in the Fungus Phycomyces*, AIP Conference Proceedings No. 18, 1326-1329 (1974).

6. W. T. Oosterhuis, B. Window, and K. Spartalian, *Sublattice Magnetization in $FeBr_3$ Below the Critical Region*, Phys. Rev. B **10**, 4616-4620 (1974).

7. K. Spartalian, W. T. Oosterhuis, N. S. VanderVen, and J. Ashkin, *Mössbauer and ESR Spectroscopy of Fe in Some Biological Iron Transport Compounds*, Proceedings of 18th Ampere Congress, Nottingham, 267-268 (1974).

8. W. T. Oosterhuis and K. Spartalian, *Mössbauer and ESR Studies in Low Symmetry Iron Complexes*, J. Physique 35 Coll. C6, C6- 347-350 (1974).

9. K. Spartalian, W. T. Oosterhuis, and J. B. Neilands, *Electronic State of Enterobactin Using*

Mössbauer Spectroscopy, J. Chem. Phys. **62**, 3538-3543 (1975).

10. K. Spartalian, W. T. Oosterhuis, and N. Smarra, *Mössbauer Effect Studies in the Fungus Phycomyces*", Biochim. Biophys. Acta **399**, 203-212 (1975).

11. K. Spartalian, G. Lang, J. P. Collman, R. R. Gagne, and C. A. Reed, *Mössbauer Spectroscopy of Hemoglobin Model Compounds: Evidence for Conformational Excitation*, J. Chem. Phys. **63**, 5375-5382 (1975).

12. K. Spartalian, G. Lang, and T. Yonetani, *Low Temperature Photodissociation Studies of Ferrous Hemoglobin and Myoglobin Complexes By Mössbauer Spectroscopy*, Biochim. Biophys. Acta **428**, 281-290 (1976).

13. W. T. Oosterhuis and K. Spartalian, *Biological Iron Transport and Storage Compounds*, in Applications of Mössbauer Spectroscopy, R. L. Cohen (Ed.), Vol. I, 142-170 (1976).

14. G. Lang and K. Spartalian, *Role of Oxygen Motion in the Temperature Dependence of ΔE in Oxyhemoglobin and Model Compounds*, in Mössbauer Effect Methodology, I. J. Gruverman (Ed.), Vol. 10, 169-181 (1976).

15. G. Lang, K. Spartalian, and T. Yonetani, *Mössbauer Spectroscopic Study of Compound ES of Cytochrome c Peroxidase*, Biochim. Biophys. Acta **451**, 250-258 (1976).

16. G. Lang, K. Spartalian, and T. Yonetani, *Mössbauer Spectroscopy of Compound ES: Support for a Fe(IV) State*, J. Physique **37** Coll. C-6, C6-217-221 (1976).

17. K. Spartalian and G. Lang, *Conformational Changes in Heme Proteins and Model Compounds*, J. Physique **37** Coll. C-6, C-6195- 197 (1976).

18. T. Kent, K. Spartalian, G. Lang, and T. Yonetani, *Mössbauer Investigation of Deoxymyoglobin in a High Magnetic Field: Orientation of the Electric Field Gradient and Magnetic Tensors*, Biochim. Biophys. Acta **490**, 331-340 (1977).

19. T. Mashiko, M. E. Kastner, K. Spartalian, W. R. Scheidt, and C. A. Reed, *Six Coordination in High-Spin Ferric Porphyrins. A New Structural Type and Models for Aquomethemoglobin*, J. Am. Chem. Soc. **100**, 6354-6362 (1978).

20. G. Lang, K. Spartalian, C. A. Reed, and J. P. Collman, *Mössbauer Effect Study of the Magnetic Properties of S=1 Ferrous Tetraphenylporphyrin*, J. Chem. Phys. **69**, 5424-5427 (1978).

21. C. A. Reed, T. Mashiko, S. P. Bentley, M. E. Kastner, W. R. Scheidt, K. Spartalian, and G. Lang, *The Missing Heme Spin State and A Model for Cytochrome c. The Mixed S=3/2, 5/2 Intermediate Spin Ferric Porphyrin: Perchlorato (meso-tetraphenylporphinato) iron (III)*, J. Am. Chem. Soc. **101**, 2948-2958 (1979).

22. K. Spartalian, G. Lang and C.A. Reed, *Mössbauer Effect Study of the Magnetic Properties of the Intermediate-Spin Complex Perchlorato (meso-tetraphenylporphinato) iron III*, J. Chem. Phys., **71**,

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23. T. A. Kent, K. Spartalian, G. Lang, T. Yonetani, C. A. Reed and J. P. Collman, *High Magnetic Field Mossbauer Studies of Deoxymyoglobin, Deoxyhemoglobin and Synthetic Analogues*, Biochim. Biophys. Acta **580**, 245-258 (1979).

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26. C. A. Reed, T. Mashiko, W. R. Scheidt, K. Spartalian and G. Lang, *High Spin Iron (II) in the Porphyrin Plane. Structural Characterization of (mesotetraphenylporphinato) bis (tetrahydrofuran) iron (II)*, J. Am. Chem. Soc. **102**, 2302-2306, (1980).

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29. K. Spartalian, and G. Lang, *Oxygen Transport and Storage Materials* in Applications of Mössbauer Spectroscopy, (R. L. Cohen, Ed.) vol. II, 249-279, (1980).

30. B. E. Smith, M. J. O'Donnell, G. Lang, and K. Spartalian, *A Mössbauer Spectroscopic Investigation of the Redox Behaviour of the Molybdenum-Iron Protein from Klebsiella Pneumoniae Nitrogenase*, Biochem. J. **191**, 449-455, (1980).

31. K. Spartalian, *Magnetic Hyperfine Interactions*, Stud. Phys. Theor. Chem. **25** (Adv. Mössbauer Spectrosc.) 455-489 (1983).

32. K. Spartalian and C. J. Carrano, *Mössbauer Spectroscopy on High Spin d^5 Iron Complexes: Crystal Field Calculations*, J. Chem. Phys. **78**, 4811-4816 (1983).

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18-octaethylporphyrinato) iron (II), J. Am. Chem. Soc. **107**, 4207 (1985).

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39. M. J. Carney, J. A. Kovacs, Y. P. Zhang, G. C. Papaefthymiou, K. Spartalian, R. B. Frankel and R. H. Holm, *Comparative Electronic Properties of Vanadium-Iron-Sulfur and Molybdenum-Iron-Sulfur Clusters Containing Isoelectronic Cubane-Type [V Fe_3 S_4]$^{2+}$ and [Mo Fe_3 S_4]$^{3+}$ Cores*, Inorg. Chem. **26**, 719 (1987).

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41. S. Lee, K. Nakanishi, M. Y. Chiang, R. B. Frankel and K. Spartalian, *Preparation, Crystal Structure, and Physical Properties of a Pyrogallol-bridged Vanadium(III) Complex*, J. Chem. Soc. Chem. Comm., 785 (1988).

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43. E. Kime-Hunt, K. Spartalian and C. J. Carrano, *Models for Vanadium-Tunichrome Interactions*, J. Chem. Soc. Chem. Comm., 1217 (1988).

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53. K. Spartalian, *Rectangles in Physics*, The Physics Teacher, **41**, 390, (2003).

54. G.P. Livingston, G.L. Hutchinson, and K. Spartalian, *Diffusion theory improves chamber-based measurements of trace gas emissions*, Geophys. Res. Lett., **32**, L24817, doi:10.1029/2005GL024744 (2005).

55. G.P. Livingston, G.L. Hutchinson, and K. Spartalian, *Trace Gas Emission in Chambers: A Non-Steady-State Diffusion Model,* Soil Sci. Soc. Am. J., **70**, 1459 (2006).